

## **Annotations**

# **Anaemia and child health surveillance**

Malnutrition has been a world problem throughout the ages. Lloyd de Mause, in his 'History of childhood', traced many of the causes from the deliberate restriction of food for young Spartans in Plutarch's time to make them physically strong to prolonged breast feeding with late weaning at 1 to 3 years of age in the 12th and 13th centuries and the use of starvation for punishment in the Middle Ages—a form of child abuse.<sup>1</sup>

In more recent times Helen Mackay in her classical paper in the third volume of this journal, published in 1928, studying 541 east London infants, with 2561 haemoglobin estimations, wrote that 'the great majority of artificially fed and many breast fed infants in London are anaemic'<sup>2</sup>—due to iron deficiency. There have been hundreds of subsequent studies. Edward de Lobo, in another classical book, found that 24% of 3 year olds born to mothers of Asian origin in Luton had a haemoglobin concentration of less than 70% (10 g/dl).<sup>3</sup> He ascribed this to prolonged milk feeding, delayed weaning, and other dietary customs. Willoughby wrote that a Glasgow survey of 6 to 24 month old children revealed a mild degree of iron deficiency in 32% of unselected children but in 59% of children in Glasgow slums.<sup>4</sup>

There are many reasons for the worldwide problem of anaemia. Apart from poverty, they include chronic infection, especially malaria, worms, and chronic dysentery; sickling (especially American negroes, Indians, and Africans); thalassaemia (in Mediterranean countries, India, and Sri Lanka); and glucose-6-phosphate deficiency (Greece, Turkey, China, India, and Philippines). Lead poisoning, by contamination of water and foodstuffs and other sources, is a worldwide cause of anaemia: de Lobo notes that whereas lead sulphide in eyelid cosmetic paste (Surma) favoured in Bangladesh and elsewhere is banned in Britain, travellers returning from Bangladesh may bring it into Britain; the lead is washed by tears into the eyes, nose, and thence the alimentary tract, where it is absorbed.<sup>3</sup> Many studies have reviewed the risks of nutritional deficiency in vegetarian and especially the Zen macrobiotic diet used by families of Asian origin.<sup>5–7</sup>

Iron deficiency may also result from maternal anaemia in pregnancy, preterm delivery, infections, malabsorption, general malnutrition, and blood

loss. Several papers have ascribed iron deficiency anaemia to blood loss resulting from allergy to cow's milk protein,<sup>8,9</sup> and it was suggested that pasteurised cow's milk should not be given in the first six months. In one study occult gastrointestinal bleeding due to allergy to cow's milk protein was found in 17 of 34 infants with iron deficiency anaemia.<sup>10</sup> Blood loss may result, among other causes, from haemophilia, ulcerative colitis, hiatus hernia, or the use of aspirin and non-steroidal anti-inflammatory drugs.

The relation of iron deficiency to pica is uncertain. Pica is usually associated with iron deficiency, but it is not clear which is the primary cause<sup>11</sup> and there are commonly other socioeconomic problems,<sup>12</sup> such as neglect, child abuse, and abnormal parent-child relationships.

The effects of malnutrition and iron deficiency have been extensively studied in Mexico, South America, United States, South Africa, and Britain. I have very briefly summarised this work.<sup>13</sup>

Iron deficiency has been said to cause defective physical growth,<sup>14</sup> delayed language and cognitive development,<sup>15</sup> the attention deficit disorder, impaired school performance and clumsiness,<sup>16</sup> and immunological deficiency with consequent repeated infections.<sup>17</sup> Two reports from Java and Egypt found that iron deficiency reduced the learning problem solving capacity of schoolchildren.<sup>18</sup> Oski, in a series of papers in several American journals, showed the effect of treatment with iron on improving the behaviour, cognitive skills, and general learning ability in children with iron deficiency.<sup>19</sup>

In this journal a Birmingham team in a well planned double blind randomised intervention study of 97 toddlers with anaemia showed a direct relation between iron deficiency, physical growth, and delayed psychomotor development.<sup>20</sup> Their conclusion, that while iron deficiency may not be the only factor in impaired development it can at least be readily identified and treated, is important and deserves emphasis. They add that child health clinics should hunt out and treat iron deficiency in toddlers as part of routine child health surveillance. I would add that all child health clinics should have facilities for haemoglobin estimation. It is difficult to detect minor but important degrees of anaemia in coloured

children, and haemoglobin estimation should be routine in all of them—and in those of ethnic backgrounds at special risk of anaemia, nutritional or otherwise.

Anaemia is common in mothers, and their anaemia may have an appreciable effect on their well being and tolerance of their children's difficult behaviour. It is not enough to treat a child's anaemia and ignore that of his mother. Child health surveillance should include checking for anaemia.

# References

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